



Humics, Inc., Camden, New Jersey is a new small business manufacturing purified humic acid and humic acid salts, primarily for agricultural applications. A partnership of Hal Hartung, a chemical engineer, and E.F. Moran, who has background in textiles and industrial chemicals, the company was created expressly to explore and exploit the commercial potential of products derived from peat, an organic soil widely used in Europe as a fuel. Humics, Inc. credits a NASA user assistance center with a major assist in identifying potential applications of humic acid and helping to focus the company's research and development activities.

Hartung and Moran started work in 1981 on the premise that peat was "too valuable to burn," that there were probably many important applications other than fuel. Hartung's early study and experimentation convinced him that the humic substances in peat offered the greatest potential value. However, extraction of humic acid and salts by conventional means was not economically feasible. The partners directed their work toward developing an economical method for extracting humics; their efforts

proved successful and in July 1984 they were granted a U.S. patent for a method of separating wet peat into component fractions and processing it to produce a variety of useful materials. The upper photo shows Hal Hartung with a batch of raw peat material; in the lower photo, a company employee is inspecting a separator used in peat processing.

In the meantime, the partners had formed Humics, Inc. to commercialize their technology. Looking for the widest possible range of applications, they learned of a NASA service provided by a network of industrial applications centers that offer information retrieval and technical help. They asked the New England Research Applications Center (NERAC), Storrs, Connecticut to conduct a computerized literature search for applications of humic acid as a supplement to their own research.

"What came back over the next year or so astounded us," Hartung says. NERAC's searches provided some 5,000 references and revealed that humic acid had worldwide interest for scores of uses; what was needed was a reliable, pure and economic source. "We

were forced to rethink the scope and nature of our project," Hartung adds.

Humics, Inc. directed its initial effort at agriculture, where a market existed. Humic acid and soluble humates have been shown to improve germination of seeds, stimulate root development, increase plant vigor, improve crop yields and help plants withstand stresses, such as temperature extremes. Humic, Inc.'s extraction process allowed the company to develop two initial purified humic acid products for which demand required doubling plant capacity in a matter of months. The company is exploring the potential of humic acid as a sewage disposal agent; test marketing a kind of horticultural peat, a byproduct of humic acid production; and conducting field and laboratory experiments toward introduction of a number of industrial applications. And, although the original idea was to explore non-fuel uses of peat, the company now feels that its technology makes possible economical production of peat fuels. Humics, Inc. estimates that gross sales of peat-derived products will reach \$8-10 million within the next two to three years. ▲